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The following list of claims will replace all prior versions and listings of claims in the application.

Listing of Claims

1. (Currently Amended) A resist composition, comprising a silicon-containing resist polymer, wherein the silicon-containing resist polymer comprises silane.
2. (Original) The resist composition of claim 1, wherein the silicon-containing resist polymer has an oxygen reactive ion etch rate of not more than about 0.35 nm/s.
3. (Currently Amended) The resist composition of claim 1, wherein the silicon-containing resist polymer comprises between about 0.1 and about 40 percent by weight ~~silicon~~ silane.
4. (Original) The resist composition of claim 1, wherein the silicon-containing resist polymer comprises between about 1.8 and about 19.8 percent by weight ~~silicon~~ silane.
5. (Original) The resist composition of claim 1, wherein the silicon-containing resist polymer further comprises isoprene.
6. (Original) The resist composition of claim 1, wherein the silicon-containing resist polymer further comprises styrene.
7. (Currently Amended) The resist composition of claim 1, wherein the silicon-containing resist polymer further comprises isoprene and styrene.
8. (Currently Amended) A resist composition, comprising a silicon-containing resist polymer~~The resist composition of claim 1, wherein the silicon-~~

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containing resist polymer comprises an element selected from the group consisting of
silystyrene, vinylsilane or a combination thereof.

9. (Canceled)

10. (Original) The resist composition of claim 1, wherein the silicon-containing resist polymer comprises a polymer formed by a hydrosilylation of isoprene.

11. (Currently Amended) A resist composition, comprising a silicon-containing resist polymer, wherein the silicon-containing resist polymer comprises a polymer formed by hydrosilylation of isoprene and the ~~The resist composition of claim 10, wherein a hydrosilylation agent is selected from the group consisting of dimethylphenyl silane, triethylsilane, and dimethylethylsilane.~~

12. (Currently Amended) A resist composition, comprising a silicon-containing resist polymer ~~The resist composition of claim 1, wherein the silicon-containing resist polymer comprises poly(dimethylphenylvinylsilane-b-isoprene) having a molecular weight between about 17,800 and about 22,100.~~

13. (Currently Amended) A resist composition, comprising a silicon-containing resist polymer ~~The resist composition of claim 1, wherein the silicon-containing resist polymer comprises poly(trimethylsilylstyrene-b-isoprene) having a molecular weight between about 10,700 and about 28,700.~~

14. (Original) The resist composition of claim 1, wherein the silicon-containing resist polymer comprises poly(styrene-b-isoprene) having a molecular weight between about 5,500 and about 21,800.

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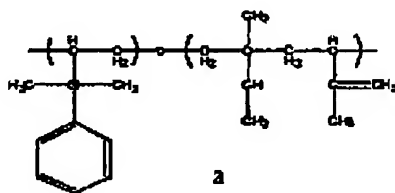
15. (Currently Amended) The resist composition of claim 1 [[5]], wherein the silicon-containing resist polymer comprises poly(styrene-b-isoprene) having a molecular weight between about 5,500 and about 5,700.

16. (Currently Amended) The resist composition of claim 1 [[5]], wherein the silicon-containing resist polymer comprises poly(styrene-b-isoprene) having a molecular weight between about 7,200 and about 21,800.

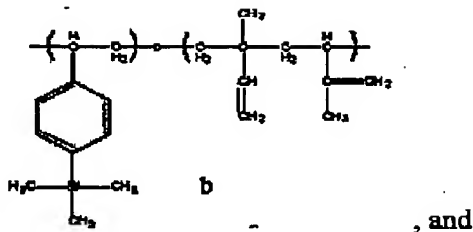
17. (Currently Amended) A resist composition, comprising a silicon-containing resist polymer ~~The resist composition of claim 1~~, wherein the silicon-containing resist polymer comprises poly(trimethylsilylstyrene-co-chloromethylstyrene) having a molecular weight between about 10,000 and about 80,000.

18. (Currently Amended) A resist composition, comprising a silicon-containing resist polymer ~~The resist composition of claim 1~~, wherein the silicon-containing resist polymer comprises poly(pentamethydisilylstyrene-co-chloromethylstyrene) having a molecular weight between about 11,000 and about 100,000.

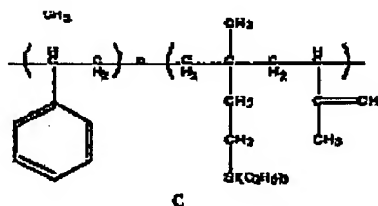
19. (Currently Amended) A resist composition, comprising a silicon-containing resist polymer ~~The resist composition of claim 1~~, wherein at least a portion of the silicon-containing resist polymer comprises a structure selected from the group consisting of:



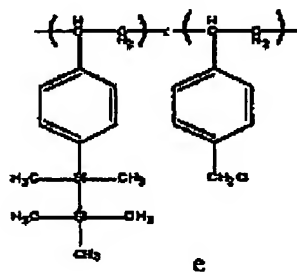
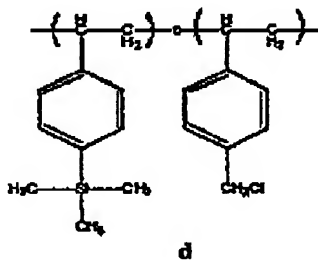
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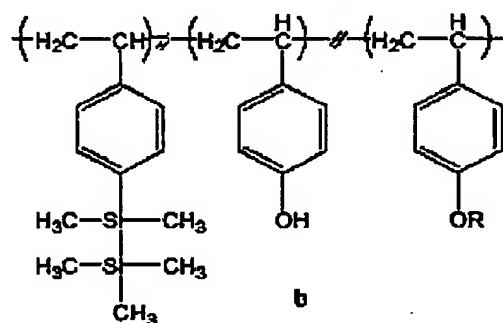
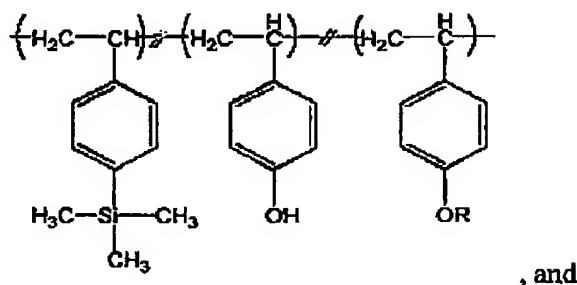
, and



20. (Currently Amended) A resist composition, comprising a silicon-containing resist polymer~~The resist composition of claim 1~~, wherein at least a portion of the silicon-containing resist polymer comprises a structure selected from the group consisting of



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wherein R represents a protecting group.

21. (Original) The resist composition of claim 20, wherein the protecting group R is selected from the group consisting of t-butyloxycarbonyl, trimethyl silane, and ethoxymethyl.

22. (Currently Amended) A resist composition, comprising a silicon-containing resist polymer ~~The resist composition of claim 1,~~ wherein the resist composition contains not more than 14 percent by weight of oxygen and fluorine combined.

23. (Canceled)

24. (Currently Amended) A resist composition, comprising a boron-containing polymer ~~The resist composition of claim 23,~~ wherein the boron-containing polymer comprises less than about 1 weight percent boron.

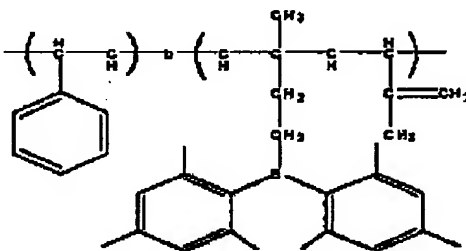
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25. (Currently Amended) The resist composition of claim 24 [[23]], wherein the boron-containing polymer comprises a boron concentration of up to about 2×10^{22} atoms per cubic centimeter.

26. (Currently Amended) The resist composition of claim 24 [[23]], wherein the boron-containing polymer comprises an element selected from the group consisting of carborane, carborane carboxylic acid, dimesitylborane, isoprene styrene, vinyl and combinations thereof.

27-31. (Canceled)

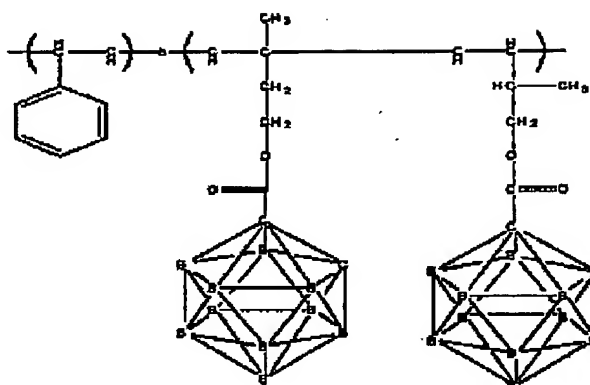
32. (Currently Amended) A resist composition, comprising a boron-containing polymer ~~The resist composition of claim 23,~~ wherein the boron-containing polymer comprises a polymer having the structure:



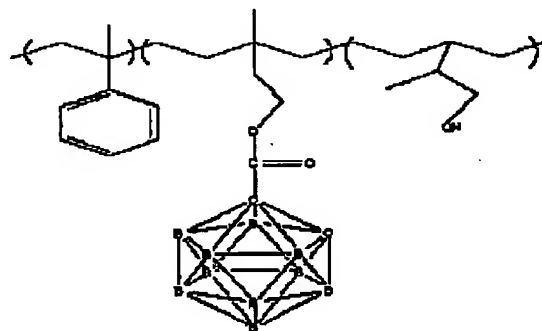
33. (Original) The resist composition of claim 32, wherein the resist composition comprises less than about 1 weight percent boron.

34. (Currently Amended) A resist composition, comprising a boron-containing polymer ~~The resist composition of claim 23,~~ wherein the boron-containing polymer comprises a polymer having the structure:

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35. (Currently Amended) A resist composition, comprising a boron-containing polymer~~The resist composition of claim 23, wherein the boron-containing polymer comprises a boron-containing polymer having the structure:~~



36. (Canceled)

37. (Original) A method for forming a silicon-containing resist copolymer, comprising: copolymerizing a monomer and a silicon-containing monomer to form the silicon-containing resist copolymer.

38. (Original) The method of claim 37, wherein the silicon-containing monomer is selected from the group consisting of silystyrene and vinylsilane.

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39. (Original) The method of claim 37, wherein the monomer comprises a polymer selected from the group consisting of isoprene, styrene, and vinyl.

40. (Original) The method of claim 37, wherein the silicon-containing resist copolymer comprises between about 0.1 percent and about 40 percent by weight silicon.

41-43. (Canceled)

44. (Original) A method for forming a boron-containing resist polymer, comprising: performing a hydroboration or esterification reaction of a boron-containing group with a polymer.

45. (Original) The method of claim 44, wherein performing a hydroboration reaction of a boron-containing group with a polymer comprises performing a hydroboration reaction using dimesitylborane as a hydroboration agent to introduce dimesitylborane into the polymer.

46. (Original) The method of claim 44, wherein performing an esterification reaction of a boron-containing group with a polymer comprises performing an esterification reaction to introduce carborane into the polymer.

47. (Original) The method of claim 46, wherein the carborane comprises carborane carboxylic acid.

48. (Original) The method of claim 44, wherein the polymer comprises a polymer selected from the group consisting of isoprene, styrene, vinyl, poly(styrene-b-isoprene), hydroxylated poly(styrene-b-isoprene), poly(styrene-b-hydroxystyrene), and poly(α -methylstyrene-b-hydroxystyrene).

49-50. (Canceled)

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51. (Currently Amended) A method for increasing the reactive ion etch resistance of a polymer, comprising incorporating boron atoms into the polymer~~The method of claim 49~~, wherein incorporating boron atoms into the polymer further comprises performing hydroboration of the [[a]] polymer or performing an esterification reaction of the polymer and a carborane.

52. (Original) The method of claim 51, wherein the hydroboration agent comprises dimesitylborane.

53. (Canceled)

54. (Currently Amended) The method of claim 51 ~~[[53]]~~, wherein the carborane comprises carborane 1-carboxyl chloride.

55. (Currently Amended) A method for increasing the reactive ion etch resistance of a polymer, comprising incorporating boron atoms into the polymer~~The method of claim 49~~, wherein the polymer comprises a polymer selected from the group consisting of isoprene, styrene, vinyl, poly(styrene-b-isoprene), and hydroxylated poly(styrene-b-isoprene), poly(styrene-b-hydroxystyrene), and poly(α -methylstyrene-b-hydroxystyrene).

56. (Currently Amended) A method for increasing the reactive ion etch resistance of a polymer, comprising incorporating boron atoms into the polymer~~The method of claim 49~~, wherein the boron atoms have a concentration in the polymer of up to 2×10^{22} atoms per cubic centimeter.

57. (Currently Amended) In a method of reactive ion etching a resist composition comprising a polymer, the improvement comprising including ~~at least one element selected from the group consisting of boron and silicon~~ silane in the polymer in an amount effective to decrease the reactive ion etch rate of the polymer.

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58. (Currently Amended) The method of claim 57, wherein including at least one element selected from the group consisting of boron and silicon silane in the polymer comprises including at least a sufficient amount of the at least one element silane to decrease the oxygen reactive ion etch rate of the polymer.

59. (Currently Amended) In a method of making a feature on a substrate by: (a) coating said substrate with a resist composition comprising a polymer; (b) exposing the resist composition to extreme ultra-violet radiation; and then (c) reactive ion etching said resist to form the feature thereon, the improvement comprising:

including at least one element selected from the group consisting of boron and silicon silane in said polymer, wherein said feature has at least one dimension less than 100 nm.

60-61. (Canceled)

62. (Original) The method according to claim 59, wherein said substrate is selected from the group consisting of semiconductor substrates, microelectronic device substrates, integrated circuit substrates, and nanoscale substrates.

63. (Currently Amended) The method according to claim 59, wherein said ~~at least one dimension less than 100 nm comprises~~ feature has at least one dimension less than 75 nm.

64. (Currently Amended) The method according to claim 59, wherein said ~~at least one dimension less than 100 nm comprises~~ feature has at least one dimension less than 50 nm.

65. (New) The resist composition of claim 22, wherein the resist composition contains not more than 14 percent by weight oxygen or fluorine.

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66. (New) The resist composition of claim 22, wherein the resist composition comprises no oxygen and/or fluorine.